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GAU-1714

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:
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CASE NO.: IJ-0005

SERIAL NO.: 09/120,608

GROUP ART UNIT: 1714

FILED: JULY 22, 1998

EXAMINER: C. SHOSHO

2/3/00

FOR: Water Insoluble Non-Ionic Graft Copolymers

RESPONSE

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

This is in response to the Office Action mailed October 18, 1999 having a period for reply set to expire on January 18, 2000. This Response is being timely filed within the allotted time period.

REMARKS

The claims are 6-12.

Double-Patenting Rejection

The Office has raised a non-statutory, obviousness type double patenting rejection to claims 6-11 based on claims 1-6 of copending application 09/120,922. In order to overcome this rejection and advance prosecution, a terminal disclaimer is being submitted herewith. To satisfy the requirement that the present application and the copending application 09/120,922 be commonly owned, Applicants also submit a declaration by the undersigned attorney.

Withdrawal of the non-statutory double patenting rejection is respectfully solicited.

CERTIFICATE OF MAILING

I HEREBY CERTIFY THAT THIS PAPER IS BEING DEPOSITED WITH THE UNITED STATES POSTAL SERVICE WITH SUFFICIENT POSTAGE AS FIRST CLASS MAIL IN AN ENVELOPE ADDRESSED TO: ASSISTANT COMMISSIONER FOR PATENTS, WASHINGTON, D.C. 20231 ON Jan 18, 2000

Kathy Coulbourn

KATHY COULBOURN
NAME OF PERSON SIGNING THIS CERTIFICATE

Rejections Under 35 USC §103(a)

The Office has raised the prospect of a rejection under 35 USC §103(a) if the copending application 09/120,922 qualifies as prior art under 35 USC §102(f) or 102(g). The enclosed declaration by the undersigned attorney obviates any such rejection.

The Office has rejected claims 6-7 and 9-12 under 35 USC §103(a) as being unpatentable over Held (US 5,853,861) in view of Ma et al. (EP 0826751) and Satake et al. (US 5,814,685). The Office position is that Held discloses all of the features of the present claims, except for the specifically recited graft copolymer. The Ma '751 and Satake references are relied upon by the Office for the disclosure of graft copolymers made from similar monomers as the present graft copolymer binders. Based on the similarity of structure and monomers used, the Office concludes that the graft copolymers of Ma '751 are film-forming as required by the present claims. The rejection is respectfully traversed.

There are several flaws in the combination effected by the Office. First, there is no disclosure or suggestion in Ma that the graft copolymer dispersants will cross-link with the cross-linking agents described in Held. Absent such a teaching, it would not be readily apparent to the skilled artisan to use the graft copolymer dispersants of Ma in Held's inks. Second, even if such graft copolymers were used, the resulting ink would fail to meet the limitations of the claimed invention. Nowhere would the combination of teachings disclose or suggest a composition comprising an aqueous vehicle, a pigment, a dispersant and a film-forming non-ionic graft copolymer as required by the claims under prosecution. There is absolutely no teaching or suggestion in either reference to use the dispersant of Ma '751 as binders in Held's ink. Thus, Applicants submit that even if one skilled in the art were to combine these references, that combination would be to substitute Ma's dispersant for the dispersants used in Held. There is absolutely no motivation for one skilled in the art to use Ma's dispersants as binders. The supposed motivation mentioned by the Office is misplaced. Those benefits are based on using Ma's polymers as pigment dispersants, not as a film-forming binder additive. The Office position that these benefits would motivate a skilled artisan to use Ma's graft copolymers for a different purpose (i.e., as a binder) is based on pure speculation and hindsight.

The Office admits that Held lacks and disclosure of the particular graft copolymer binders recited in the claims. The Office reliance on Ma '751 for the disclosure of graft polymers is misplaced. The graft copolymers of Ma '751 are used a dispersants, whereas the present claims recite the polymers as film-forming binders. The simple fact that the same monomers are used in making both the present graft copolymers and those of Ma '751 does not mean they have the same properties or that they have the same function when used in an ink jet ink.

Indeed, the function of a dispersant is to disperse the pigment in the ink vehicle via a stabilization mechanism. Dispersant generally do not have film-forming properties. Binders on the other hand generally do not have any dispersant functionality, but do have a film-forming capacity.

It is fundamentally recognized in the art of ink jet inks that dispersants and binders are different polymer -- different in name, different in function, different in properties and different in structure. The fact that dispersants and binders can be made from the same monomers is irrelevant.

In addition, dispersant polymers and binder polymers are used a different times in the manufacture of the inks. In particular, the dispersant polymer is mixed with the pigment under high shear to form a dispersion of the polymer. The dispersion is then neutralized to render it (in the case of aqueous inks jet inks) water soluble and the dispersion concentrate is then let down with the ink vehicle to form the ink. Binder polymers are added at the time of letting down the concentrate (*see* example 5 of the present specification).

Contrary to the Office position (page 10, second paragraph), the disclosure in Ma '751 would not motivate a skilled worker to use the polymers of Ma '751 as film-forming binders. By adding a dispersant polymer as a binder, one risks creating competition between the dispersant polymers for the pigment particles, which increases the risk that the dispersion will become unstable. Because Ma '751 discloses that the graft copolymers have a dispersant function, one skilled in the art would not be motivated to use the polymers as film-forming binders. Further, because dispersant polymers are not required to, and typically do not have, film-forming properties, one skilled in the art would not even expect such polymers to be useful as binders.

The Satake reference is relied upon solely for the disclosure of using N-vinyl pyrrolidone as a hydrophilic monomer. Applicants note the disclosure, but further note that the polymers disclosed in Satake are not graft copolymers, nor are they film forming binders. Rather, the polymers of Satake are dispersion polymers (i.e., dispersants) having a core-shell structure. Thus, the combination of this reference with Ma is questionable, but in any event does not cure the defects in the combination of Ma and Held noted above.

In further support of their position, Applicants submit the Rule 132 Declaration of Harry J. Spinelli, dated January 18, 2000, which accompanies this Response.

Claim 8 is rejected as obvious over Held, '751 and Satake, and further in view of Ma 698 and Yamashita.

The respective teachings of Ma '698 and Yamashita of using glycol ether solvents in the aqueous ink vehicle and using fluorinated surfactants are noted. However, Applicants submit that the combination of references, even if proper, fails to meet the features of the presently claimed invention for the reasons noted above. In particular, the combination of Yamashita's surfactant and Ma '698's glycol ethers with Held and Ma '751 fails to teach or suggest an aqueous composition containing a film-forming, non-ionic graft copolymer binder in addition to a pigment, a dispersant and an aqueous vehicle as claimed. Further, Applicants submit that the Office position is based on pure hindsight. While Applicants do not dispute that the Ma '698 and Yamashita references generally disclose the particular solvents and surfactants recited in the claims, they contain absolutely no disclosure or suggestion whatever of combining particular solvents with particular surfactants and particular binders in a pigmented ink composition. The Office will appreciate, for example, that the solubility of the binder is stated in the claim with respect to the ink vehicle and with respect to water. Where in the combination of references is there any disclosure or suggestion of selecting binder having a particular structure and having a particular solubility in water and in the ink vehicle, which vehicle contains particular co-solvents and water? Selecting bits and pieces of disclosure from various references and combining them to meet the claimed features, with no guidance for making the particular selections, is fundamentally improper as hindsight reconstruction of the invention.

Claims 6-12 stand rejected under 35 USC §103(a) as unpatentable over Ma (EP 0 851 014) in view of Ma '698. The rejection is respectfully traversed.

First, the polymers disclosed in Ma '014 are hydrosol polymers, which are defined as "water insoluble polymers initially synthesized in organic solvent and then dispersed as a separate phase in an aqueous carrier medium. Page 4, lines 11-12. As such, the hydrosol polymers are similar to emulsion polymers. There is no disclosure or suggestion that such polymers are film forming and the Office contention that such are inherently film forming because they share the same monomers as the present binders is addressed and refuted above.

The Office relies upon Ma '698 for the disclosure of pyrrolidone and glycol ether cosolvents. Applicants refer the Office to the arguments set forth above regarding Ma '698 and Yamashita. Applicants submit that by selecting particular solvents from a large list of potential solvents and combining them to reject a claim, such as the present claim, which discloses particular solvents in relation to a binder having specific solubility parameters, the

Office has engaged in hindsight reconstruction because there is no teaching or suggestion or motivation in the references for the **particular combination** of features recited in the claims. In other words, without some motivation or teaching reference for making the selection effected by the Office, the Office is merely making choices based on the present disclosure, which is fundamentally improper. This is readily apparent in the Office position that, while Ma '014 does not disclose that the ink is washfast, washfastness is an inherent feature of Ma's inks because they contain the "ingredients identical to those presently claimed, i.e., vehicle, pigment, surfactant, and graft copolymer. . . ." Office Action, page 14. The position is nonsense. Is a Ford Pinto intrinsically a sports car simply because it has the identical components as a Corvette, i.e., a motor, transmission, wheels, chassis, steering, brakes and body? Has the Office not heard of washable markers and permanent markers, or washable fabrics and dry clean only fabrics? On a macro level, the markers and the fabrics contain the same ingredients, yet there properties are fundamentally different, even opposite in certain respects.

In view of the foregoing, the combination of features recited in the present claims is not disclosed, taught or suggested by the references of record. For these reasons, reconsideration and withdrawal of all rejections are respectfully solicited and allowance of the above-referenced application is respectfully requested.

Respectfully submitted,

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Dated: 18 January 2000